

Applicant : Hao Yuan  
Serial N . : 10/018,981  
Filed : December 18, 2001  
Page : 3 of 6

Attorney's Docket No.: 13774-002001 / I01113/US

### REMARKS

Initially, Applicant would like to thank the Examiner for the telephone interview with his counsel on September 5, 2003. A letter dated August 14, 2003 was sent to the Examiner to facilitate discussion in the interview. A copy of this letter is attached hereto as "Exhibit A" to serve as a partial summary of the interview. Other points discussed during the interview are summarized below.

This document is a response to the final office action dated April 1, 2003; the advisory action dated July 24, 2003; and all the points raised by the Examiner during the above-mentioned interview.

Note that, in the advisory action, the Examiner did not comment on the merits of Applicant's response to the final office action. Instead, he asserted that the amendments proposed in the response would result in "further consideration and search." Applicant disagrees. More specifically, Applicant merely removed a member from the Markush group recited in original claim 16 and the Examiner has already conducted a search for all five members of this Markush group. During the telephone interview, the Examiner withdrew this objection, presented new grounds for rejection, and agreed to Applicant's request for filing this supplemental response.

Claims 16-19 and 21 are currently pending. Applicant respectfully requests reconsideration of the application in view of the following remarks.

In the final office action, the Examiner rejected claims 16 and 19-21 as being obvious over Liu et al., Chinese Pharmacist-Prepared Medicine, 1998, 20:3, 7-9 ("Liu") in view of Yuan, Chinese Patent Document No. CN 1174052 ("Yuan"). See page 3, lines 14-15.

Amended claim 16 is drawn to a method of treating osteoporosis, angina of coronary heart disease, or cerebral infarction, or a method of ameliorating hemorheological index. The method includes administering a subject in need of *Cajanus cajan*(L.) Millsp leaves or an extract thereof. The Examiner has concluded that the methods of treating angina of coronary heart disease and cerebral infarction (i.e., claims 17 and 18) are allowable. On the other hand, he rejected the method of treating osteoporosis and the method of ameliorating hemorheological index as for obviousness. Applicant respectfully traverses.

Applicant : Hao Yuan  
Serial No. : 10/018,981  
Filed : December 18, 2001  
Page : 4 of 6

Attorney's Docket N. : 13774-002001 / I01113/US

### *Osteoporosis*

As correctly pointed out by the Examiner, Liu is not relevant to treating osteoporosis and ameliorating hemorheological index. See the final office action, page 4, lines 10-13. Applicant therefore will focus the discussion on Yuan.

During the interview, the Examiner contended that it would have been obvious to use an extract of *Cajanus cajan* (L.) Millsp leaves to treat osteoporosis in view of Yuan, which discloses using the same to treat ischemic necrosis of the femoral head. Specifically, the Examiner pointed out that, according to Yuan, an extract of *Cajanus cajan* (L.) Millsp leaves help form bone mass. The Examiner then proceeded to conclude that, in view of this disclosure, this herbal medicine could also be used to treat osteoporosis. Applicant disagrees.

Applicant has made it clear in the response to the first office action that osteoporosis is a disease different from ischemic necrosis of the femoral head, i.e., osteoporosis is characterized by reduction in bone mass. See page 4, lines 10-12. Specifically, osteoporosis develops with age as both collagen framework and minerals in bones are broken down much faster than they are formed, resulting in bone mass reduction. It is not due to death of bone cells or blood supply shortage.

Unlike osteoporosis, ischemic necrosis of the femoral head is characterized by death of bone cells due to failure or shortfall of blood supply to the femoral head. See the response to the first office action, page 4, lines 16-18. Indeed, Yuan discloses that ischemic necrosis of the femoral head can be treated by regenerating blood vessels, which penetrate proliferating sclerotic layers around the necrotic thigh bone to absorb necrotic bone and regenerate new bone. See the English abstract. In view of Yuan, one skilled in the art would not have expected that an extract of *Cajanus cajan* (L.) Millsp leaves can be used to treat osteoporosis, which is caused by collagen and mineral reduction, rather than by blood supply shortage.

Further, as pointed out in the specification, 89 out of 200 patients (44.5%) with osteoporosis showed "notable effect" after being treated with an extract of *Cajanus cajan* (L.) Millsp leaves. On the other hand, Yuan discloses that only 22.5% of patients with ischemic necrosis of the femoral head showed significant improvement from the same treatment. See the response to the final office action, page 4, lines 16-20. This different result confirms that osteoporosis involves a mechanism different from ischemic necrosis of the femoral head.

Applicant : Hao Yuan  
Serial No. : 10/018,981  
Filed : December 18, 2001  
Page : 5 of 6

Attorney's Docket No.: 13774-002001 / I01113/US

Indeed, Yuan does not motivate one skilled in the art to use an extract of *Cajanus cajan*(L.) Millsp leaves to treat osteoporosis. Further, one skilled in the art would not have expected that treatment with an extract of *Cajanus cajan*(L.) Millsp leaves would result in such a high degree of efficacy.

For the reasons set forth above, treating osteoporosis with an extract of *Cajanus cajan*(L.) Millsp leaves is not rendered obvious by a combination of Yuan and Liu.

#### *Hemorheological Index*

Applicant has pointed out in the response to the final office action that *Cajanus cajan*(L.) Millsp leaves or an extract thereof ameliorates hemorheological index by promoting blood circulation and removing blood stasis, rather than preventing blood microcirculation as disclosed in Yuan. See page 4, line 29 to page 5, line 1.

During the interview, the Examiner asserted that ameliorating hemorheological index involves the same mechanism as treating ischemic necrosis of femoral head. Specifically, he contended that preventing blood microcirculation would promote blood macrocirculation and remove blood stasis, thereby ameliorating hemorheological index. Applicant disagrees.

Blood microcirculation, i.e., in capillaries, is part of the blood macrocirculation, since capillaries are the links between arterial vessels and venous vessels. Preventing blood microcirculation will prevent blood circulation from arterial vessels to venous vessels, instead of promoting blood circulation as asserted by the Examiner.

As mentioned above, Yuan discloses that treatment with an extract of *Cajanus cajan*(L.) Millsp leaves prevents blood microcirculation. It follows that Yuan discloses that this treatment prevents blood circulation. Thus, Yuan teaches away from ameliorating hemorheological index with this herbal medicine through promoting blood circulation.

Further, hemorheological index is a condition completely different from ischemic necrosis of the femoral head. It relates to the hemorheological properties of the blood as a whole in the human blood circulation system. According to this invention, an extract of *Cajanus cajan*(L.) Millsp leaves can promote blood circulation in a human body as a whole, and thereby ameliorating hemorheological index. On the other hand, Yuan only discloses that an extract of *Cajanus cajan*(L.) Millsp leaves can prevent blood microcirculation in the femoral head, a small

Applicant : Hao Yuan  
Serial No. : 10/018,981  
Filed : December 18, 2001  
Page : 6 of 6

Attorney's Docket No.: 13774-002001 / 101113/US

part of the blood circulation system. One skilled in the art would not have expected to promote blood circulation as a whole using a herbal medicine, which was reported by Yuan to only prevent blood microcirculation in a small part of the human body (i.e., the femoral head). Thus, for this additional reason, Yuan also does not render obvious ameliorating hemorheological index with an extract of *Cajanus cajan*(L.) Millsp leaves.

As pointed out above, the other reference Liu does not even suggest ameliorating hemorheological index. Thus, Yuan and Liu, either alone or combined, does not render obvious ameliorating hemorheological index with an extract of *Cajanus cajan*(L.) Millsp leaves.

### CONCLUSION

For the reasons set forth above, amended claim 16 is not obvious over Liu in view of Yuan. Neither are claims 19 and 21, both of which are dependent from claim 16.

The Examiner has concluded that claims 17 and 18, dependent from claim 16, contain allowable subject matter. As claim 16 is now allowable, these two claims are in condition for allowance in their dependent form.

Applicant submits that the grounds for the rejection asserted by the Examiner have been overcome, and that claims 16-19 and 21, as pending, define subject matter that is nonobvious over the prior art. On this basis, it is submitted that all claims are now in condition for allowance, an action of which is requested.

Please apply the \$465 for the Petition for Extension of Time Fee to deposit account 06-1050, referencing Attorney's Docket No. 13774-002001.

Respectfully submitted,

Date: \_\_\_\_\_

9-22-03

Y. Rocky Tsao

Y. Rocky Tsao, Ph.D., J.D.  
Attorney for Applicant  
Reg. No. 34,053

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110-2804  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906  
20726560.doc